

Application No. 10/822,642

REMARKS

Claims 20, 22-26, 28-43 are pending. By this Amendment, claims 20, 31, 41 and 43 are amended to more particularly point out Applicants' claimed invention. Claims 24, 40 and 42 are canceled without prejudice. In particular, claims 41 and 43 are amended for clarity with respect to the antecedent basis for the density, and there is no intention of narrowing claims 41 and 43 by the amendments. The amendment of claim 20 incorporates features from now canceled claims 24 and 40. The amendment of claim 31 incorporates the features of claim 42, which is now canceled. No new matter is introduced by the amendments.

All pending claims stand rejected. Applicants respectfully request reconsideration of the rejections based on the following analysis.

Claim Objection

The Examiner objected to claim 22-23 and 29-30 as being in improper dependent form under 37 C.R.F. 1.75(c) since they limit a subsequent claim rather than a previous claim. With all due respect, the claims all properly limit claims from which they depend. During prosecution, the order of the claims is often improper with respect the ordering for an issued patent. For example, claims 39-41 have intervening claims between the claims from their claim group. See MPEP 608.01(j) and 37 C.F.R. 1.126. Generally, the claims are renumbered upon allowance. If this is burdensome on the Examiner and the office, Applicant would be happy to cancel and renumber appropriate claims to put them in order of issuance once the claims have been found otherwise allowable. However, Applicant respectfully asserts that the claims are in proper form for examination. Applicant respectfully request withdrawal of the objection to the claims.

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Rejection under 35 U.S.C. § 112, Second Paragraph

The Examiner rejected claims 40-43 under 35 U.S.C. § 112, second paragraph, as being indefinite. Specifically, the Examiner asserted that the density was not clear whether or not the stated range was between or not. With all due respect the claim does not use the word "between." The plain meaning of the language is that the range includes the end values and all values between the stated end values. With all due respect, this is plain and clear wording. The Examiner also asserted that it was not clear if percent should be read into the claim. Percent is not there, and there is absolutely no reason to read the word percent into the claim. Applicants maintain that it is completely clear that the claim is referring to 2% to 55% or as stated a factor of 0.02 to 0.55, which are equivalent. To provide further clarity, the language has been reworded.

The Examiner further asserted that there was no antecedent basis for "the fully densified material mass density." While generally it is clear to refer to necessary properties of a claim element without explicitly reciting that the element has this necessary property, Applicant has explicitly added to the independent claims the explicit recitation that a material has a density. As amended there is explicit antecedent reference, it is clear that the coating material is not fully densified. In view of the clarifying amendments, Applicants respectfully request withdrawal of the rejection of claims 40-43 under 35 U.S.C. § 112, second paragraph, as being indefinite.

Rejection Over Hicks, Miller, Berkey, and Kobayashi

The Examiner rejected claims 20, 22-26, 28-30 and 39-41 under 35 U.S.C. § 103(b) as being unpatentable over U.S. Patent 4,749,396 to Hicks (Hicks) in view of U.S. Patent 4,501,602 to Miller (Miller), U.S. Patent 4,684,384 to Berkey (Berkey) and U.S. Patent 3,957,474 to Kobayashi et al. (Kobayashi). The Examiner indicated that the general nature of the references was disclosed in the previous Office Actions. The Examiner particularly cited Miller for its

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teaching of silica and rare earth dopants. However, Applicant has amended claim 20 to more particularly point out their claimed invention. Applicant asserts that the combined teachings of the references do not lead to Applicant's presently claimed invention. Thus, the combined teachings of the cited references do not render Applicant's invention *prima facie* obvious. Applicant respectfully requests reconsideration of the rejection based on the following comments.

The cited references alone or combined do not teach or suggest a coating composition comprising "particles having an average primary particle diameter of no more than about 500 nm" or " an average density a factor from about 0.02 to about 0.55" with respect to material when the fully densified. Since the combined disclosures do not teach or suggest all of the claim elements, the combined teachings of Hicks, Berkey, Kobayashi and Miller do not render Applicant's claimed invention *prima facie* obvious.

In view of the above comments, Applicant respectfully requests withdrawal of the rejection of claims 20, 22-26, 28-30 and 39-41 under 35 U.S.C. § 103(b) as being unpatentable over Hicks in view of Berkey, Kobayashi and Miller. Although Applicants do not acquiesce in the Examiner's position on the particular issues relating to the dependent claims, Applicants do not presently comment on the specific issues relating to the dependent claims since these issues are moot in view of the comments above.

Rejection Over Hicks, Berkey and Kobayashi under 35 U.S.C. § 103(a)

The Examiner rejected claims 31-33, 38 and 42-43 under 35 U.S.C. § 103(a) as being unpatentable over Hicks in view of Miller, Berkey, Kobayashi and U.S. Patent 5,958,348 to Bi et al. (Bi). The Examiner cited the first four references as disclosed in the previous Office Actions. The Examiner cited Bi for the teaching related to laser pyrolysis. However, Bi does not provide teachings leading toward the combination suggested by the Examiner. Thus, the combined

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teachings of the references do not render Applicant's claimed invention *prima facie* obvious. Furthermore, Applicant has amended claim 31 to more particularly point out their claimed invention. Applicant respectfully request reconsideration of the rejection based on the following comments.

"To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." MPEP § 2142 (citing In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)).

Bi explicitly is directed to particle collection, i.e. powder formation. This mode of operation is opposed to coating formation, which precludes the ability to harvest the high quality unagglomerated particles for use in appropriate powder applications. Applicant refers the Examiner to US 2003/0228415A for a related laser based coating process. However, this later coating process by Bi et al. and a related pending application are not prior art to the present application since there was an obligation of common assignment when the present invention was made, although the applications are no longer commonly assigned. Since the cited Bi reference does not motivate or suggest the present invention and teaches away from the present invention, Bi does not support the present rejection.

The Examiner indicated that Miller teaches the idea of collecting the "soot" for later deposition. Presumably, the Examiner is referring to column 7, lines 25-36. However, Applicants have amended claim 31 to more particularly point out the claimed invention. In particular, claim 31 now recites a particular density range that is relatively low relative to the bulk glass material. Miller

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refers to shaping the loose soot through compaction or casting. This would not be consistent with the low ranges of density now claimed. Therefore, Miller does not make up for the deficiencies of Bi with respect to forming the claimed coating.

As noted in the earlier Amendments, Hicks and the other cited references apart from Bi do not teach or suggest a reaction to form a product stream driven by a light beam that is directed to not strike the substrate/insert. Since Bi does not teach or suggest forming a coating and Miller does not teach forming a suitable coating from collected soot, the combined teachings of the references do not render Applicant's claimed invention *prima facie* obvious.


Since the combined teachings of the cited references do not render the claims *prima facie* obvious, Applicants respectfully request withdrawal of the rejection of claims 31-38 and 42-43 under 35 U.S.C. § 103(a) as being unpatentable over the Hicks patent in view of Miller, Berkey, Kobayashi and Bi. Although Applicants do not acquiesce in the Examiner's position on the particular issues relating to the dependent claims, Applicants do not presently comment on the specific issues relating to the dependent claims since these issues are moot in view of the comments above.

CONCLUSIONS

In view of the foregoing, it is submitted that this application is in condition for allowance. Favorable consideration and prompt allowance of the application are respectfully requested.

The Examiner is invited to telephone the undersigned if the Examiner believes it would be useful to advance prosecution.

Respectfully submitted,



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